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*Gratitude to Farley.*

# MUTATION WITH ORCHIDS

This Album is translated into English, German and Dutch.

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## PAMPHLETS PUBLISHED BY THE SAME AUTHOR :

Concerning the possibility of provoking systematically among plants :

a) *The appearance of new vital phenomena.*

b) *Mutation.*

(Brussels, Goemaere, 1926. Translated into English, and Dutch.)

A word to practical men. A protest.

(Brussels, Goemaere, 1927. Translated into English.)

Indifference or want of comprehension

(Brussels, Goemaere, 1927. Translated into English.)

Why, in botanical science, a collaboration between Scientists and Practical Men, under the present circumstances, cannot be realized.

(Brussels, Goemaere, 1927. Translated into English.)

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Lucien REYCHLER

# MUTATION WITH ORCHIDS

## RESULTS OBTAINED BY CROSSINGS WITH MUTANTS OF CATTLEYA

## FREAKS

## PHENOMENA OF TELEGONY?

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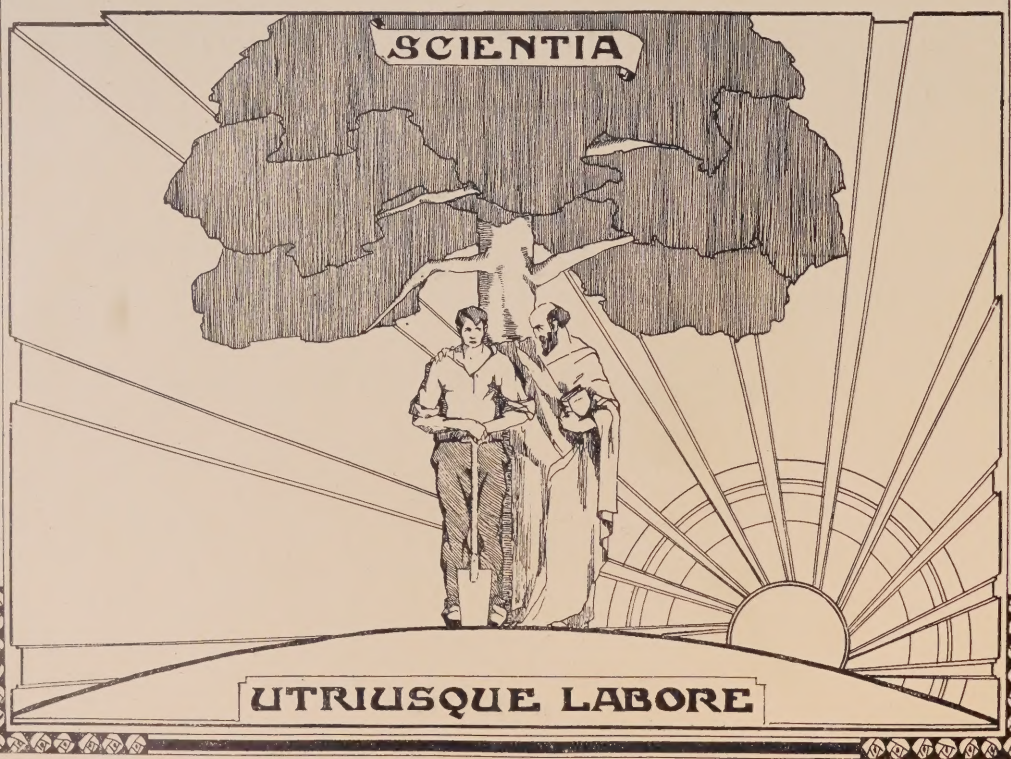


Robert V. d. Velde

THE ENGLISH EDITION OF THIS ALBUM
IS DEDICATED TO LUTHER BURBANK

*... These new fields of work which I have had the luck, or the Mission, to discover in the plant world are moreover* inexhaustible. *They will interest Mankind as long as they take an interest in Botanical Biology or Horticultural Science and the methods of investigation which I advocate will remain, in their main points of course, probably unchanged.*

LUCIEN REYCHLER.

(*Conclusion terminating this album*).

The publication of the present album, with all the explanatory information concerning the methods followed and the results obtained in my crossings with orchids, will seem absurd, to say the least of it, to all practical men. Besides which, I was advised not to do it by almost every one.

What! after 17 years of researches, to divulge secrets which ensure you *a priority* that no one could contest, is it not madness?

However, I firmly believe that it is my duty to reveal everything and to be as sincere as possible. In Science, we must not by any voluntary omission, place obstacles which might stand in the way of comprehension.

This is how this solution presented itself to my mind and the reason why I accept it:

In 1926, I published a pamphlet on my investigations in the plant world in general. (1)

I imagined that disclosures such as those concerning « fertilising after operation direct in the ovary » or « the possibility of provoking premature germination after liberation of the germ by operation, or the publication of the methods called « cultivation in distinct environment », would have induced other researchers to make experiments in order to test them, to take up my work and complete it. Was I not justified in thinking so, since they show that man will one day succeed in being able to provoke Mutation systematically?

If this result were attained, « Science would learn to see more clearly into the obscure problem of Evolution; Philosophy would draw fresh conclusions from it; Agri-

(1) « Concerning the possibility of provoking systematically among plants: a) the appearance of new vital phenomena; b) mutation. (Brussels 1926, Goemaere, printer to the King, for private circulation only.)

culture and Horticulture would perceive an altogether different line of work showing, by its probable results, a beneficial upheaval in the economy of the world ». (1)

Well, however incredible this may appear, the problem of the « possibility of provoking Mutation systematically among plants » as I present it, does not seem to interest scientists. (2)

However, whether my results are exact, as I affirm, or whether they are false, should not science give the definite proof?

Practical men themselves, although often making use of Mutants found in nature for their crossings, for their part do not always realize the general importance of my researches. (3)

They make use of Mutants under conditions too disadvantageous to observe in their crossings the sometimes disconcerting results, for they operate, most of the time, on species which have been already a long time under cultivation, that is to say, out of their « infancy » since time immemorial. Then they attribute the astonishing results which they obtain to atavism, although they are often due to the Mutants of which they have made use, sometimes even unknown to themselves.

The new types obtained by my crossings with orchids *prove* that one can succeed in amplifying considerably the characteristics of a Mutant *from the first generation*.

Besides, by the crossing between two Mutants, of which one, at first sight, seemed of more than doubtful value, but suited to the object I wished to attain, I obtained such extraordinary forms that one is amazed at that which can be produced at a stroke.

I am entitled to affirm that these unknown forms are originated by new interactions of fresh rhythms of vital forces, which absolutely differ from the hereditary rhythms of the

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(1) « A word to Practical Men. (Brussels 1927, Goemaere, printer to the king, for private circulation only.)

(2) « Why, in Botanical Science, a collaboration between Scientists and Practical Men, under the present circumstances, cannot be realized. » (Brussels 1927, Goemaere).

(3) The Horticultural paper ***Het Tuinbouwblad*** which publishes the Dutch translation of my pamphlet « Concerning the possibility », etc , says, *word for word*, in the preface the following; (n$^{r}$ of the 15$^{th}$ November 1927) : De Studie van M. Reychler, welke wij hierna geven, wordt zooals men zien zal, niet door elkeen als zuiver en echt wetenschappelijk werk aanzien »; which can be thus translated : « M$^{r}$ Reychler's pamphlet, which we publish below, is not considered by everyone, as will moreover be seen, as a purely scientific work ».

I quote this criticism published *without protest* by a horticultural newspaper, in order to prove what is thought of my researches by specialists who *ought*, however, to know that the simple observations of practical men, *based on facts*, contain more « scientific truth » than fantastic speculations, however learned they may be. L. R.

species. The results that I had the good fortune to obtain with orchids amply demonstrate that, by a judicious choice of Mutants, we can become *real creators of new forms and qualities for the species* in an incredibly limited time (here already in the first generation). The publication of my album with its *complete instructions* thus becomes the natural complement to the researches published in the above-mentioned pamphlet. (1)

Better than long discourses, the sight of the normal types and that of the transformations they have undergone by the influence of Mutants, will convince those who are interested, both scientists and pratical men, of the part which can be played by hereditary anomalies and, consequently, of the *great* importance of the problem « of provoking Mutation systematically among plants ».

By publishing only simple photos of my superb new forms of Cattleyas, without explanatory notes, I should merely have succeeded in interesting from an esthetic point of view. But one must also emphasize the great scientific interest attached to these unique crossings.

Without doubt, in one way, I am wrong in divulging secrets which have cost me so many years of research, carried on amidst difficulties and endless disappointments, but which will allow orchid lovers to repeat what I have done and to go on further. But, in another way, I am accomplishing my task and completing my Mission.

The future will show whether, tossed about by the whims of Destiny, the solution chosen will lead me to the object that I have always followed : that of seeing, during my lifetime, my researches in the plant world, which the demands of life forced me to renounce, taken up, continued and completed by others.

LUCIEN REYCHLER.
*Saint-Nocolas (Waes)*
*Belgique.*

(1) « Concerning the possibility », etc.

## MUTATION AND FREAKS.

We call *Mutation* the appearance of a new *hereditary* property in an individual. If the new property is only a passing one, it is no longer Mutation, but a *Freak*.

## GENERAL DIVISION OF THE ALBUM

This album, which only concerns orchids, is divided into three parts :

In the first, are classified the photos showing the results obtained with Cattleyas by crossings, in which one of the parents at least is a Mutant.

In the second part, the photographs representing cases of Freaks with the Cymbidium and the Cattleyas.

In the third part are found reproductions tending to prove in the crossings among Cattleyas the appearance of phenomena bordering on Telegony (?).

## FIRST PART.

Before touching upon the results obtained with Cattleyas by crossings in which one of the parents, at least, is a Mutant, let us say a few words about the two Mutants of *Cattleya Labiata A* (fig. 1) and B (fig. 2) of which I made use :

The Mutant of *Cattleya Labiata A* (fig. 1) is an imported plant ; it is characterized by five broad petals, while the normal form bears two broad petals and three narrow ones, (fig. 3) ; with this Mutant, the two broad, lower petals partly bear the maculation of the labellum. It is a Mutant which has regularly flowered during several consecutive years, always showing the *same* form of flower.

The Mutant of *Cattleya Labiata B* (fig 2) is also an imported plant.

The photo (fig. 2) was taken during the 2nd year that the plant flowered in my hot-houses. I was *extremely interested* in the new, regular form which this Mutant showed.

Note well that instead of two broad petals and three narrow ones (normal form), we here observe the existence of 3 broad petals and 4 narrow ones. It always *seemed* to me that during the first year of importation, this Cattleya did not give me, with regard to the flower, such a regular, abnormal form. This fact is of importance, as we shall see further on.

Although the plant was puny (which the photo of the flower also shows), I nevertheless decided to use it as seed-parent. It did not survive the burden that I had laid upon it.

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## GENERAL CONSIDERATIONS CONCERNING THE RESULTS OBTAINED WITH CATTLEYAS BY CROSSINGS WITH MUTANTS

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It is a principle known to every hybridizer that the new characteristics which characterize a Mutant, have a tendency not only to perpetuate, but to *develop themselves* in the descent.

Going by these facts, I made different trials of crossings with orchids, especially with Cattleyas, showing mutations of form and colour in the flower and this in two different ways :

*First case* : One of the parents only being a Mutant : the Mutant A (fig. 1).

*Second case :* Both parents being Mutants : *a*) the Mutants A (fig. 1) and B (fig. 2); *b*) I tried again the self-fertilization of the Mutant A (fig. 1).

### FIRST CASE.

Among the plants produced by crossings made according to the first case (one of the parents being normal and the other the Mutant A (fig 1), I found, roughly speaking, 3 very different characteristic forms of flowers :

1° The normal form of the flower of a kind of *Cattleya*, that is to say, that, of one of the parents.

2° The form of the Mutant A (fig. 1), that is to say, the form of the flower of the other parent.

3° An intermediate form of flower between that of the two parents.

Considering the extremely limited number of the seedlings compared with the millions of seeds which the combined pods bore, I thought it better not to confine myself to exact figures and to simply state that the number of descendants resembling the normal form is, on the whole, very much the same as that of the individuals which have adopted, in their main outlines, the characteristics of the Mutant. Only the form clearly intermediate between the two parents is exceedingly rare, hardly any individuals among several hundreds of plants having had a flower till now.

I add *clearly* because, in fact, in all crossings, both the father and the mother probably exercise their influence. Only, the question of the influence of the parents, enquired into minutely, is exclusively a matter of interest for Biological Science. But from a horticultural point of view, we can be satisfied with a rougher examination (and how much so!!!) with our eyes, which allows us to classify the descent according to the three quite distinct forms in question.

I have been, besides, led to make a very interesting discovery which tends to prove how true is what I have just said about the collective influence of the parents and I draw the special attention of researchers to this fact : in many cases where the descendant acquires the general form of the Mutant, it nevertheless possesses, as to details, *elements given by the normal parent.*

The fact would be still more obvious, if I could show at the side of the photograph of each product which has acquired the form of the Mutant of Cattleya A (fig. 1), that of the normal parent. Unfortunately, the normal plants got lost among the heap, or died during the winter of 1917 and 18. for want of heating and care. We must content ourselves with normal types *something like them*, which will be treated of in the following lines and which already allow us to make many an interesting comparison.

## A WORD CONCERNING THE NORMAL TYPES OF WHICH I MADE USE IN COMBINATION WITH THE MUTANT OF CATTLEYA LABIATA A (fig. 1.)

All the normal Cattleyas of which I made use, either as father or as seed parent belonged, roughly speaking of course, to one of the forms of Cattleya (fig. 3, 4, 5 and 6). As stated above, I show these photos so that the reader may follow the influence of the normal parents with the different crossings of which I give the photos.

Here is the type fig. 3 which shows a perfect form of *Cattleya Labiata* Then comes fig. 4, which is a reproduction of *Cattleya Loddigesi*, which is characterized by a small deformed special labellum and with its petals perceptibly alike.

In fig. 5, we show the type of the *Brasso-Cattleya* (*Brassavola-Dygbiana* × *Cattleya*) which is distinguished by an immense Labellum very finely fringed.

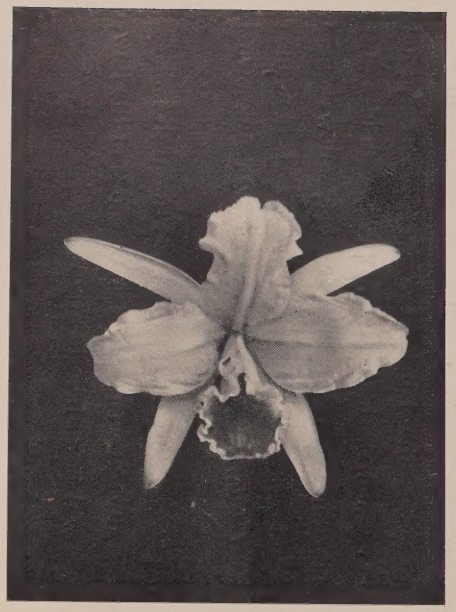
The photo furnished by fig. 6 recalls the form of a hybrid with a partially unknown ascendance. I made use of this hybrid for a crossing, because the bronze colour of the petals pleased me very much and because the bright claret colour of the labellum was remarkable. Moreover, the labellum was of a very special shape, as will be observed, although the photo which ought to give as precise an idea of it as possible, has already a slightly modified labellum. This photo, however, allows one to form a fairly clear idea of the general aspect of the hybrid in question. I remember that the latter had as one of its parents the *Cattleya Aurea*, the other was unknown by the specialist himself who gave it to me.

Let us now pass to the photographs of the crossings themselves.

These photographs generally give the *exact* dimensions of the flowers. Where there is a difference, these dimensions will be rather slightly reduced.

Mutant of *Cattleya Labiata A*.
Mutant « with regard to the *dimension* » of the petals.

FIG. 1.



Mutant of *Cattleya Labiata B*.
Mutant « with regard to the *number* » of the petals.

FIG. 2.

Perfect form of the *Cattleya Labiata*
(2/3 of the natural size).

FIG. 3.

*Cattleya Loddigesi* (according to a plate of the « Lindenia »).

FIG. 4.

*Brasso Cattleya* (2/3 of the natural size).

FIG. 5.

Type of *unknown Hybrid* resembling in the shape of its labellum and petals the *Cattleya Alexandrae.*

*Var. Elegans.*

(according to a plate of the « Lindenia »).

FIG. 6.

FIG. 7. *Cattleya Mrs Pitt* (type fig. 4) × *Mutant of Cattleya Labiata A* (fig. 1).

Var. *M^lle Bertha Reychler*.

The types fig. 7-8-9 come from the same crossing.

Fig. 7 *Cattleya Mrs Pitt* (1) (type fig. 4) × *Mutant of Cattleya Labiata A* (fig. 1).

Var. *M^lle Bertha Reychler*.

The *Cattleya Mrs Pitt* already shows a form perceptibly different from that of the *Cattleya Loddegesi* (fig. 4), only the resemblance is still sufficient to confirm the very strong influence of the *Cattleya Loddigesi* in the flowers shown by the fig. 7, 8 and 9.

With regard to the round form of the flower and the highly varied colouring of the labelli, this crossing is remarkable from every point of view. The flowers are not very large, but some of them are exceedingly beautiful in form.

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(1) *Cattleya Mrs Pitt* = *Cattleya-Loddigesi* × *Cattleya Aurea*.

Var *Mlle Bertha Reychler*.

FIG. 8. *Cattleya Mrs Pitt* (type fig. 4) × *Mutant of Cattleya Labiata A* (fig. 1).

Var. *M^me^ Paula Pauwels-Reychler*.

The types fig. 7, 8 and 9 come from the same crossing.

Fig. 8. *Cattleya. Mrs Pitt* (type fig. 4) × *Mutant of Cattley a Labiata A* (fig. 1).

Var. *Mme Paula Pauwels-Reychler.*

Var. *M^me^ Paula Pauwels-Reychler.*

FIG. 9 *Cattleya Mrs Pitt* (type fig. 4) × *Mutant of Cattleya Labiata A* (fig. 1).

Var. *M^me^ Karel Reychler*.

The types fig. 7, 8 and 9 come from the same crossing.

Fig. 9. *Cattleya Mrs Pitt* (type fig. 4) × *Mutant of Cattleya Labiata A* (fig. 1).

Var. *Mme Karel Reychler*.

Var. *M^me^ Karel Reychler.*

FIG. 10. *L. C. Goldfinch* (type fig. 3) × *Mutant of Cattleya Labiata A* (fig. 1).

Var. *Mr Joe Van Assel.*

Fig. 10 *L. C. Goldfinch* (1) (type fig. 3) × *Mutant of Cattleya Labiata A* (fig. 1).

Var. *Mr Joe Van Assel.*

The *L. C. Goldfinch* approaches in form the type shown by the *Cattleya Labiata* fig. 3, but is much less beautiful.

The result of this crossing has not succeeded very well : Plants of difficult growth and, in general, puny flowers, do not open very well. The photo (fig. 10) is an *exception*, it is the finest specimen; the only one, from every point of view, *remarkable* produced up till now among the lot.

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(1) *L. C. Goldfinch* = *C. Dowiana aurea* × *L. C. Warnhamensis.*

*L. C. Warnhamensis* = *C. Trianae* × *L. Cinnabarina.*

Var. *Mr Joe Van Assel.*

FIG. 11. *Cattleya Labiata* (type fig. 3) × *Mutant of Cattleya Labiata A* (fig. 1).

Var. *Mme Joseph Van Eyck*.

The types fig. 11 and 12 come from the same crossing.

Fig. 11. *Cattleya Labiata* (type fig. 3) × *Mutant of Cattleya Labiata A* (fig. 1).

Var. *M^me^ Joseph Van Eyck*.

Superb crossing, the two types shown by the photos prove this.

Var. *M^me^ Joseph Van Eyck.*

FIG. 12. *Cattleya Labiata* (type fig. 3) × *Mutant of Cattleya Labiata A* (fig. 1).

Var. *Miss Mitchell.*

The types fig. 11 and 12 come from the same crossing.

Fig. 12. *Cattleya Labiata* (type fig. 3) × *Mutant of Cattleya Labiata A* (fig. 1).

Var. *Miss Mitchell.*

Var. *Miss Mitchell.*

FIG. 13. *Cattleya Fabia* (type fig. 3) × *Mutant of Cattleya Labiata A* (fig. 1).

Var. *Mrs L. H. Baekeland.*

The types fig. 13 and 14 come from the same crossing.

Fig. 13. *Cattleya Fabia* (1) (type fig. 3) × *Mutant of Cattleya Labiata A* (fig. 1.)

Var. *Mrs L. H. Baekeland.*

A crossing of great beauty.

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(1) *Cattleya Fabia* = *Cat. Labiata* × *Cat. Aurea.*

Var. *Mrs L. H. Baekeland.*

FIG. 14. *Catlleya Fabia* (type fig. 3) × *Mutant of Cattleya Labiata A* (fig. 1).

Var. *Mrs Emmanuel Parsons*.

The types fig. 13 and 14 come from the same crossing.

Fig. 14 *Cattleya Fabia* (type fig. 3) × *Mutant of Cattleya Labiata A* (fig. 1).

Var. *Mrs Emmanuel Parsons*.

Notice the *intense* colouring of the Labellum.

Var. *Mrs Emmanuel Parsons*.

FIG. 15. *Cattleya Aurea* (type fig. 3) × *Mutant of Cattleya Labiata A* (fig. 1).

Var. *Mme Louise Dumesnil.*

The types fig. 15 and 16 come from the same crossing.

Fig. 15 *Cattleya Aurea* (type fig. 3) × *Mutant of Cattleya Labiata A* (fig. 1).

Var. *M^me^ Louise Dumesnil.*

One of the hardiest crossings, with large, strong and beautiful flowers.

Var. *M^me^ Louise Dumesnil.*

FIG. 16. *Cattleya Aurea* (type fig. 3) × *Mutant of Cattleya Labiata A* (fig. 1).

Var. *M^me^ Magali Collin.*

The types fig. 15 and 16 come from the same crossing.

Fig. 16. *Cattleya Aurea* (type fig. 3) × *Mutant of Cattleya Labiata A* (fig. 1).

Var. *M^me^ Magali Collin.*

Var. *M^me^ Magali Collin.*

FIG. 17. *Cattleya Hardyana* (type fig. 3) × *Mutant of Cattleya Labiata A* (fig. 1).

Var. *Mrs Newham*.

The types fig. 17, 18 and 19 come from the same crossing.

Fig. 17. *Cattleya Hardyana* (1) (Type fig. 3) × *Mutant of Cattleya Labiata A* (fig. 1).

Var. *Mrs Newham*

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(1) *Cattleya Hardyana* = *Cattleya Aurea* × *Cattleya Gigas*.

Var. *Mrs Newham.*

FIG. 18. *Cattleya Hardyana* (type fig. 3) × *Mutant of Cattleya Labiata A* (fig. 1).

Var. *Frau Johannes Böttner*.

The types fig. 17-18 and 19 come from the same crossing.

Fig. 18 *Cattleya Hardyana* (type fig. 3 × *Mutant of Cattleya Labiata A* (fig. 1).

Var. *Frau Johannes Böttner.*

Var. *Frau Johannes Böttner*.

FIG. 19. *Cattleya Hardyana* (type fig. 3) × *Mutant of Cattleya Labiata A* (fig. 1).

Var. *Mme Noémi Astier*.

The types fig. 17 18-19 come frome the same crossing.

Fig. 19 *Cattleya Hardyana* (type fig 3) × *Mutant of Cattleya Labiata A* (fig. 1).

Var. *Mme Noémi Astier*.

Notice in the crossing fig. 19 the extraordinary development of the inferior petals.

Var. *M^me^ Noémi Astier*.

FIG. 20. *Unknown Hybrid* (type fig. 6) × *Mutant of Cattleya Labiata A* (fig. 1)

Var. *M^me^ Paul Reclus*.

The types fig. 20, 21 and 22 come from the same crossing.

Fig. 20 *Unknown Hybrid* (type fig. 6) × *Mutant of Cattleya Labiata A* (fig. 1).

Var. *M^me^ Paul Reclus.*

Although having adopted the general form of the Mutant, we notice very well in the 3 different crossings (figs 20-21-22) that the details are furnished by the normal parent : intense colouring of the inferior petals and of the labellum, stiff form of the petals and without undulations (whereas in the *Mutant of Cattleya Labiata A* (fig 1) the edges of the petal are very curly).

Var. *M^me^ Paul Reclus.*

FIG. 21. *Unknown Hybrid* (type fig. 6) × *Mutant of Cattleya Labiata A* (fig. 1).

Var. *Mejuffer Juliette van Lierde.*

The types fig. 20-21 and 22 come from the same crossing,

Fig. 21 *Unknown Hybrid* (type fig. 6) × *Mutant of Cattleya Labiata A* (fig 1).

Var. *Mejuffer Juliette van Lierde.*

Var. *Mejuffer Juliette Van Lierde.*

FIG. 22. *Unknown Hybrid* (type fig. 6) × *Mutant of Cattleya Labiata A* (fig. 1).

Var. *Miss Louise Reychler*.

The types fig. 20-21 and 22 come from the same crossing

Fig. 22. *Unknown Hybrid* (type fig. 6) × *Mutant of Cattleya Labiata A* (fig. 1.)

Var. *Miss Louise Reychler.*

The fig. 22 shows us a plant with dwarf flowers.

This plant is vigorous and healthy (the 4 flowers prove this). It is quitte pretty. Another plant of the same crossing has produced dwarf flowers almost similar.

Var. *Miss Louise Reychler.*

FIG. 23. *Brasso Cattleya Veitchy* (type fig. 5) × *Mutant of Cattleya Labiata A* (fig. 1).

Var. *Souvenir de M^me^ Lucien Linden.*

The types fig. 23, 24 and 25 come from the same crossing.

Fig. 23 *Brasso Cattleya Veitchy* (1) (Type fig. 5) × *Mutant of Cattleya Labiata A* (fig. 1).

Var. *Souvenir de M^me^ Lucien Linden.*

Crossing giving some very curious types (fig. 23 and 24). The influence of the normal parent is clearly shown in the details.

The two inferior petals are delicately fringed as with the normal *Brasso Cattleya*, although the general form is that of the Mutant of *Cattleya Labiata A* (fig. 1).

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(1) *Brasso Cattleya Veitchy* = *Cattleya Mossiae* × *Brassavola Dygbiana.*

Var. *Souvenir de M^me^ Lucien Linden.*

FIG. 24. *Brasso Cattleya Veitchy* (type fig. 5) × *Mutant of Cattleya Labiata A* (fig. 1).

Var. *M^me^ Emile Krumme.*

The types fig. 23-24 and 25 come from the same crossing.

Fig. 24. *Brasso Cattleya Veitchy* (type fig. 5) × *Mutant of Cattleya Labiata A* (fig. 1).

Var *M^me^ Emile Krumme.*

Very beautiful form, one of the most interesting of all.

Var. *M^me^ Emile Krumme.*

FIG. 25. *Brasso Cattleya Veitchy* (type fig. 5) × *Mutant of Cattleya Labiata A* (fig. 1).

Var. *Mrs Parker*.

The types fig. 23-24-25 come from the same crossing.

Fig. 25. *Brasso Cattleya Veitchy* (type fig. 5) × *Mutant of Cattleya Labiata A* (fig. 1)

Var. *Mrs Parker*.

The fig. 26 shows a type having a form between the two parents (very rare up till now).

Var. *Mrs Parker.*

FIG. 26 *Cattleya Trianae* (type fig. 3) × *Mutant of Cattleya Labiata A* (fig. 1).

Var. *Miss Louise Parsons*.

The types fig. 26 and 27 come from the same crossing.

Fig. 26 *Cattleya Trianae* (type fig. 3) × *Mutant of Cattleya Labiata A* (fig. 1).

Var. *Miss Louise Parsons.*

An exceptionally fine crossing.

Var. *Miss Louise Parsons.*

FIG. 27. *Cattleya Trianae* (type fig. 3) × *Mutant of Cattleya Labiata A* (fig. 1).

Var. *Mej. Zuster Louise Polak.*

The types, fig. 26 and 27 come from the same crossing.

Fig 27 *Cattleya Trianae* (type fig. 3) × *Mutant of Cattleya Labiata A* (fig. 1).

Var. *Mej Zuster Louise Polak*

Var. *Mej. Zuster Louise Polak.*

FIG. 28 *L. C. Charlesworthy* (type 3?) × *Mutant of Cattleya Labiata A* (fig. 1).

Var. « *Merveille de St-Nicolas* ».

Fig. 28. *L. C. Charlesworthy* (1) (type 3?) × *Mutant of Cattleya Labiata A* (fig. 1).

Var. « *Merveille de St-Nicolas.* »

Only seedling of the pod. Exceedingly strange in colouring, (dark orange yellow) the *only* flower of a yellow colour that I possess up till now A unique plant; therefore, in this respect, the rarest of all

---

(1) *L. C Charlesworthy* = *Laelia Cinnabarina* × *Cattleya Aurea.*

Var. « *Merveille de Saint-Nicolas* ».

FIG. 29. *Mutant of Cattleya Labiata A* (fig. 1) × *L. C. Colmaniana extra* (type fig. 3).

Var. *M^me^ Etienne Rabaud*.

Fig. 29. *Mutant of Cattleya Labiata A* (fig 1) × *L. C. Colmaniana extra* (1) (type fig. 3).

Var. *M^me^ Etienne Rabaud*

A superb crossing; as a whole, the finest of all.
Notice that the Mutant A (fig. 1) was in this case the seed parent.

---

(1) *L. C. Colmaniana* — *Cattleya Aurea* × *L. C. Arnoldiana*.
*L. C. Arnoldiana* = *Laelia purpurata* × *Cattleya Gigas*.

Var. *M^me^ Etienne Rabaud.*

FIG. 30. *Cattleya Percivaliana* (type fig. 3) × *Mutant of Cattleya Labiata A* (fig. 1).

Var. *Frau Raymond Matthys*.

Fig. 30 *Cattleya Percivaliana* (type fig. 3) × *Mutant of Cattleya Labiata A* (fig. 1).

Var. *Frau Raymond Matthys*.

Beautiful form, intense colouring.

Var. *Frau Raymond Matthys.*

FIG. 31. Modified ovaries.

Fig. 31. Modified ovaries.

The flower of the *Mutant of Cattleya Labiata A* (fig. 1) shows an ovary of special rounded form which, among the seedlings, is taken by all the ovaries of the flowers that have adopted this form of the *Mutant of Cattleya A* (fig. 1).

To give an idea of this, see fig. 31.

*a*) fertilized ovary (several months in advance) *normal;*

*b*) *c*) fertilized ovary (several months in advance) from plants, of seedlings having taken the form of *Cattleya Labiata A* (fig. 1).

The profound comparative study of these ovaries under the microscope would be very interesting.

FIG. 31.

## SECOND CASE.

Let us now pass on to the photographs showing crossings of the second category : those coming from a Mutant through a Mutant, that is to say, from the crossing of the *Mutant of Cattleya Labiata B* (fig. 2) with the *Mutant of Cattleya Labiata A* (fig. 1). A very simple argument took place in my mind at this crossing; I said to myself : the *Mutant of Cattleya A* (fig. 1) represents a Mutant in *dimension* 5 *broad* petals instead of two broad and three narrow ones, which the normal type has got. The *Mutant of Cattleya Labiata B* (fig. 2) shows a Mutant in *number*, that is to say, instead of the 5 petals of the normal type, there are 7 of them, 3 broad and 4 narrow ones.

If, in the descent, we could succeed in creating individuals uniting the qualities of the Mutant in *dimension* and those of the Mutant in *number*, we should obtain cattleyas with 7 broad petals, which would be an unexpected progress. Well, in the result, the number 7 was greatly exceeded, since the flower of a seedling attained 13 as the numer of its petals. Only, with these double flowers, the labellum has almost entirely disappeared; this will be seen, moreover, by the photos of the 3 « double » individuals. (fig 32-33-34).

With regard to the *form of the flowers*, we have observed in 45 individuals of this crossing which flowered up till now, the appearance :

*a*) Of double forms (3 plants out of 45 individuals);

*b*) Of the form *of the father*, that is to say, of the *Mutant of Cattleya Labiata A* (fig. 1).

*c*) Of the *normal* form of the *Cattleya Labiata* (type fig. 3).

*d*) Of « *impossible* » forms (fig. 35-36-37-38).

It is to be observed that, up till now, we have not perceived with any seedling the form of the *Mutant of Cattleya Labiata B* (fig. 2) that has served as seed-parent, which would tend to confirm (?) the suppositions that I expressed in the first pages, that this Mutant does not produce the *same* form of abnormal flower every year. It was a kind of *variable* Mutant of the flower, if one can call it so.

What is, moreover, very curious is that with the « impossible » forms the flowers on a same stalk are *different*. This leads me to suppose that it is not so certain that when the plants with double flowers produce two flowers, that these will be exactly identical. It is possible that they will be quite different. It is not even certain that, from year to year, a same plant will give the same form of double flower. I base my suppositions on the fact

which I have just mentioned when stating that the *Mutant of Cattleya Labiata B* (fig. 2) had no abnormal flowers of the same form for two consecutive years.

This characteristic of the Mutant B (fig. 2) might be passed on in the descent (???). The future will show this and we shall see by examining the photos next year how it is. It would be useless to make purely theoretical comments on this subject : they could teach us nothing *positive*.

The ovaries of the double flowers, as well as those of flowers with impossible forms are very curious in structure. Certain double flowers have the 4 pollinies, others have less. In short, all this is most interesting from a biological point of view and merits serious and profound study, which should be taken up by scientists

FIG 32. *Mutant of Cattleya Labiata B* (fig. 2) × *Mutant of Cattleya Labiata A* (fig. 1)

Var. *Gratitude to Farley.*

The types fig. 32 33-34 35 36-37-38 come from the same crossing

Fig. 32 *Mutant of Cattleya Labiata B* (fig. 2) × *Mutant of Cattleya Labiata A* (fig. 1).

Var. *Gratitude to Farley*

Perfect Form.

Var. *Gratitude to Farley*

FIG. 33. *Mutant of Cattleya Labiata B* (fig. 2) × *Mutant of Cattleya Labiata A* (fig. 1).

Var. *Mme Lucien Reychler*.

The types 32-33-34-35-36-37-38 come from the same crossing.

Fig. 33. *Mutant of Cattleya Labiata B* (fig. 2) × *Mutant of Cattleya Labiata A* (fig. 1).

Var. *Mme Lucien Reychler*.

Var. *M^me^ Lucien Reychler*.

FIG. 34. *Mutant of Cattleya Labiata B* (fig. 2) × *Mutant of Cattleya Labiata A* (fig. 1).

Var. *Jacobus Reychler*.

The types fig. 32-33-34-35 36-37-38 come from the same crossing.

Fig. 34. *Mutant of Cattleya Labiata B* (fig. 2) × *Mutant of Cattleya Labiata A* (fig. 1).

Var. *Jacobus Reychler.*

Var. *Jacobus Reychler*.

FIG. 35. *Mutant of Cattleya Labiata B* (fig. 2) × *Mutant of Cattleya Labiata A* (fig. 1).

2 flowers *different* in form on *the same* stalk.

The types fig. 32-33-34-35-36-37-38 come from the same crossing.

Fig. 35. *Mutant of Cattleya Labiata B* (fig. 2) × *Mutant of Cattleya Labiata A* (fig. 1).

2 flowers *different* in form on *the same* stalk.

2 flowers in form *different* on the *same* stalk.

FIG. 36 *Mutant of Cattleya Labiata B* (fig. 2) × *Mutant of Cattleya Labiata A* (fig. 1).

2 flowers *different* in form on the *same* stalk

The types fig. 32-33-34-35-36-37-38 come from the same crossing.

Fig. 36. *Mutant of Cattleya Labiata B* (fig. 2) *Mutant of Cattleya Labiata A* (fig. 1).

2 flowers *different* in form on the *same* stalk.

2 flowers *different* in form on the *same* stalk.

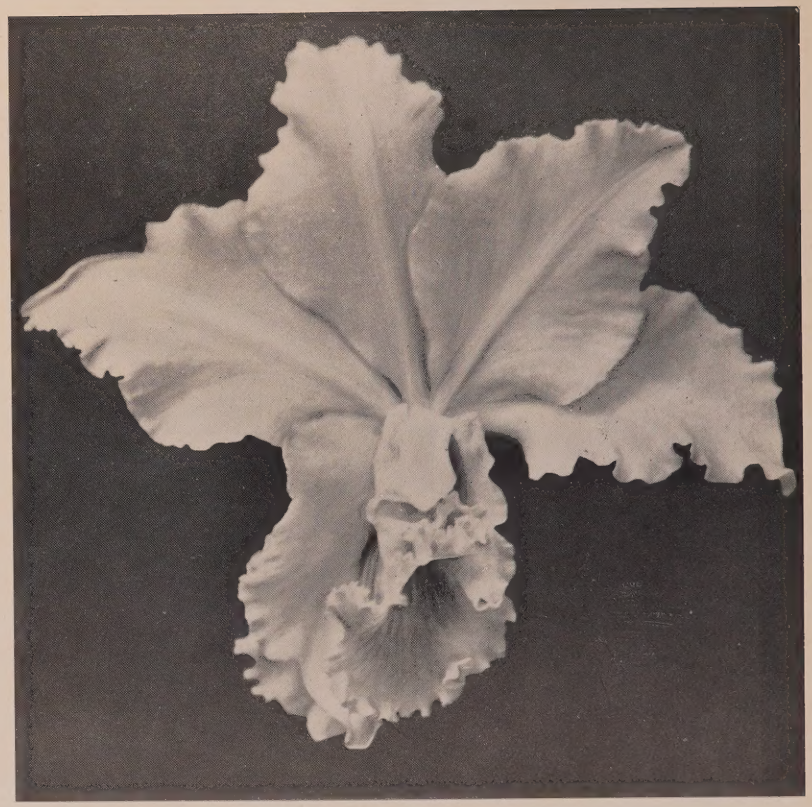
FIG. 37. and 38 *Mutant of Cattleya Labiata B* (fig. 2) × *Mutant of Cattleya Labiata A* (fig. 1).

Flowers coming from different plants.

The types 32-33 34-35 36-37-38 come from the same crossing.

Fig. 37 and 38. *Mutant of Cattleya Labiata B* (fig. 2) × *Mutant of Cattleya Labiata A* (fig 1)

Flowers coming from different plants.



Flowers coming from different plants.

FIG. 39. Natural Freak with *Cymbidium Pauwelsi* (see also fig. 40).

(*Cymbidium Lœwianum* × *Cymbidium Sanderae*).

# FREAKS AMONG ORCHIDS

Let us repeat that the difference which separates a Freak plant from the normal individual is only a *transitory* one, (not hereditary) and is, at times, only to be seen in the flower during a single flowering. Such was the case with the beautiful naturel Freak of the Cymbidium fig. 39 and 40.

This floral branch of Cymbidium was characterised by the fact that all the normal flowers were to be found on the *same* side of the stalk and that the modified flowers were all the more abnormal the further they were away from this side The drawing fig. 40 gives a clear view of the phenomenon, clearer than the photo which was not a succes. The completely abnormal flowers were *superb.*

The plant is a crossing between *Cymb. Loewianum* and *Cymb. Sanderae*, that is to say, a *Cymbidium Pauwelsi.*

I tried the self-fertilization of a modified flower (of the finest); the pod perished accidentally before the maturity of the seeds.

The Freak in this plant, let us repeat it once more, was never produced again during the following years.

I am content simply to show the photos without comments, wishing only to draw the attention of researchers to the strange enigma attached to it.

The crossings between Freak plants should be tried. Especially when they are as remarkable as that of Cymbidium, which I have just shown.

Natural Freak with *Cymbidium Pauwelsi* (see also fig. 40).

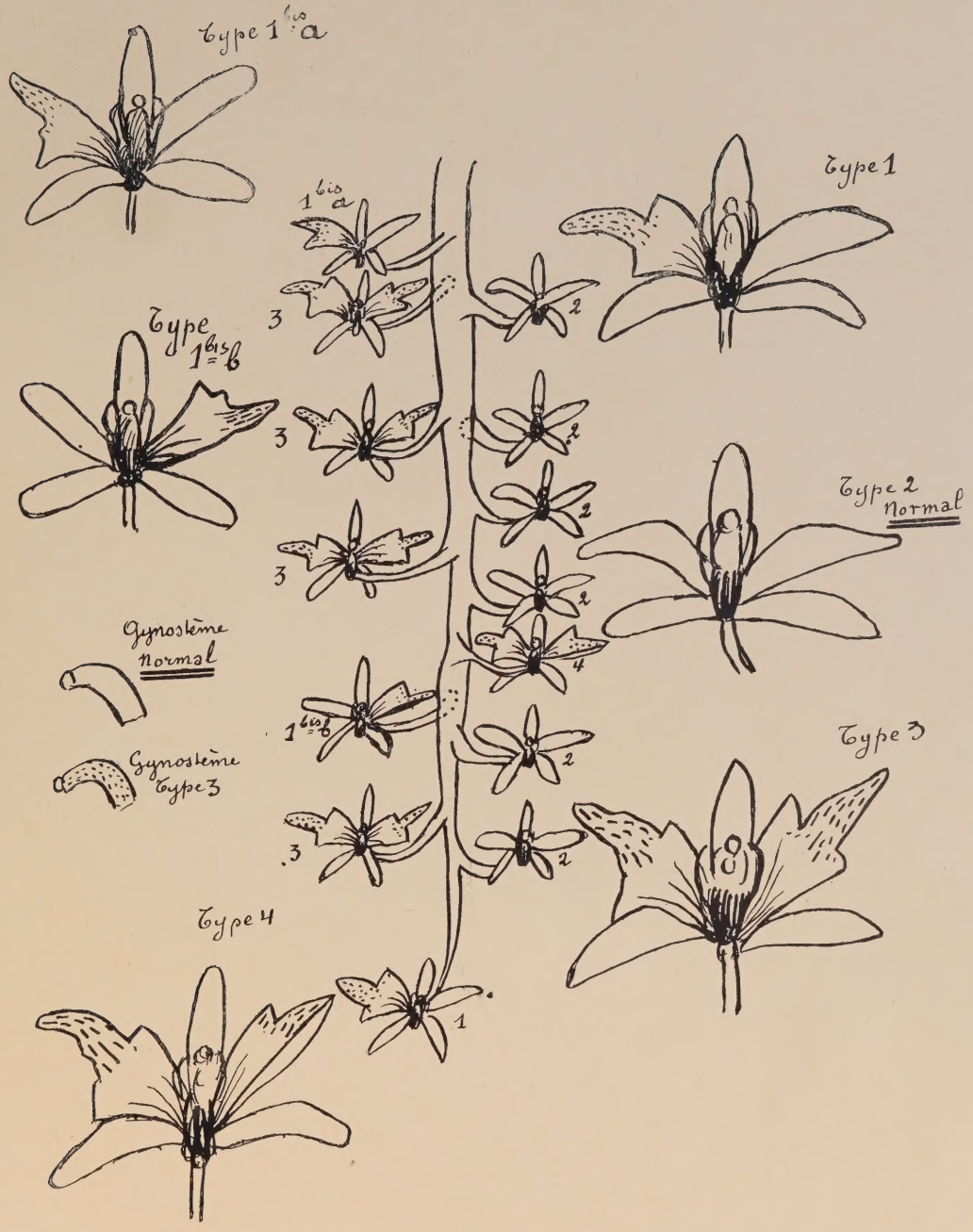
FIG. 40. Natural Freak with *Cymbidium Pauwelsi*.

Outline drawing in order to understand the photo (fig. 39).

Fig. 39 and 40 reproduce the same phenomenon.

Fig. 40. Natural freak with *Cymbidium Pauwelsi. Cymb. Lœwinianum* × *Cymb. Sanderae.*

Outline drawing in order to understand photo fig. 39.




Natural Freak with *Cymbidium Pauwelsi*.

# INTERESTING CASE OF FREAK AMONG CATTLEYAS.

Fig. 41 and 42 give photos of « artificial » Freaks of Cattleyas, provoked under the following circumstances.

In November 1917, I was obliged for want of fuel (I lived in the rationed district at the time of the German occupation) to cultivate my orchids during two months (until January 1918) at a very low temperature : 10 degrees centigrade during the day, 7° and 8°, sometimes 5° during the night. The buds of the *Cattleya Percivaliana* and *Cattleya Trianae*, then later *Cattleya Schræderae* stopped growing, and many plants did not even flower. Towards the middle of January, I was able to put my orchids again into a more normal temperature, 16° to 17° centigrade.

The result was that the flowering of all the Cattleyas quoted above was *delayed* for two months. I had very few flowers and those plants which flowered, for the greater part, gave me flowers of the same kind as those represented by the photos fig. 41 and 42, that is to say, *real Freaks*. The explanation of the phenomenon is to be understood more or less as follows : During the two months that the cultivation at a low temperature lasted, the plants having already from the beginning of the cold period the rudiments of buds, no longer succeeded in developing them normally, one petal growing to the detriment of the other, which often grew into the first or was missing altogether. Most of the plants which had not yet any rudiments of buds at the end of November 1917 did not produce any flower at all. In short, I observed, as I stated above : 1) the great scarcity of flowering and 2) the appearance of a mass of Freaks.

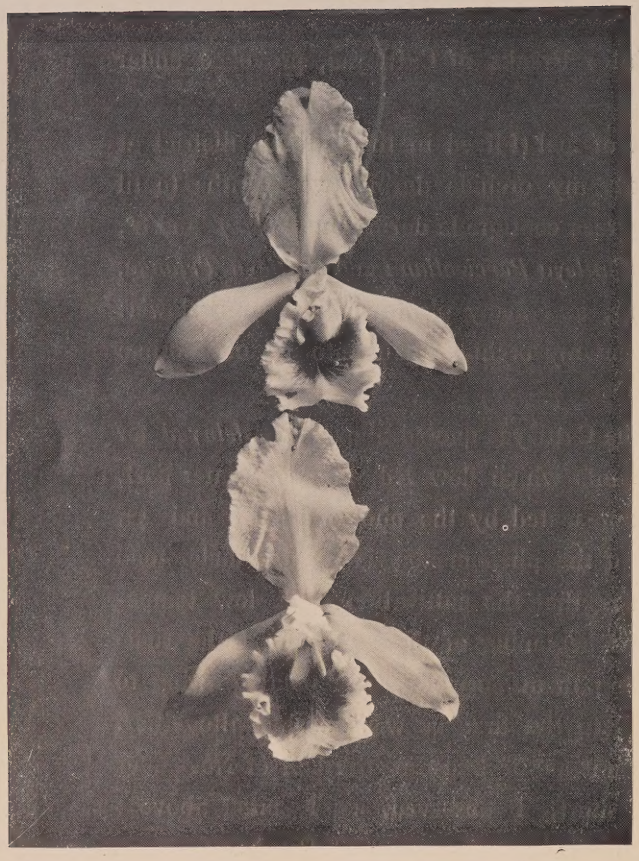


FIG. 41.

FIG. 42.

## CONCERNING THE INFLUENCE OF THE FLOWER POLLEN-PARENT ON THE FLOWER SEED-PARENT. (PHENOMENA OF TELEGONY ?)

I have noticed that the *Mutant of Cattleya Labiata A* (fig. 1) having been fertilised by a plant with flowers of normal type had, during the years that followed the gathering in of the seeds, modified the form of its flowers in such a way that it resembled a little more the normal type. Here are the two forms for comparison :

Fig. 43. *Mutant of imported Cattleya Labiata A* (fig. 1).

Fig. 44 flower of the same plant, showing the modified type which appeared after the plant had served as seed-parent, the pollen-parent having been a type of normal *Cattleya* of normal form. (*L. C. Colmaniana*. Notice the modification of the lower petals).

The same incident happened with a mutant of *Cattleya Trianae* which was chosen several times as seed-parent (I was not successful in causing the seeds to germinate which, hoewever, a couple of times were good).

Fig. 45 original type of Mutant of imported Cattleya Trianae.

Fig. 46-47-48 modified flowers of the original type (fig. 45) showing how, after successive crossings with types of normal Cattleyas, or with the Mutant of *Cattleya Labiata A* (fig. 1) the original type of the Mutant has become modified. I have no exact data on these successive crossings, I know that I have made the crossings in question, but I do not remember any exact details as to the number, or as to the individuals, of which I made use.

Here is another case of the influence of the plant having served as pollen-parent on the seed-parent : a very beautiful *Brasso Cattleya* (*C. Trianae alba* × *Brassavola Dygbiana*) having flowers of a greenish white was taken as seed-parent, the plant chosen as father being a white *Cattleya* also, only the whites are not always of pure descent.

What was my astonishment to observe again in that year that this *Brasso-Cattleya* with greenish white flowers gave me a flower of a clearly pinkish tint. It was no longer even white !!! Here is an influence exercised by the pollen parent on the colour of the flower of the seed parent (??) I state what I have experienced. *My conclu-*

*sions are evidently not supported by a sufficient number of experiments ;* but they are worthy of being taken into consideration. (1)

I quote these facts to draw attention to the following important point, which the practical man will have to take into account and which can be summed up as follows :

Whoever wishes to keep a plant untouched by any influence, must make use of it *exclusively* as pollen parent, and never as seed parent. This is of the greatest importance when we intend to keep the form or new qualities intact in a fine Mutant. I cannot answer for the absolute correctness of this advice, but I prove by examples and show by the photos what I have stated, in order to make the serious hybridizer, who wishes to do interesting work, prudent, and thus spare himself the surprise of discovering one fine morning that, to his great despair, a unique form has become modified... I speak from experience.

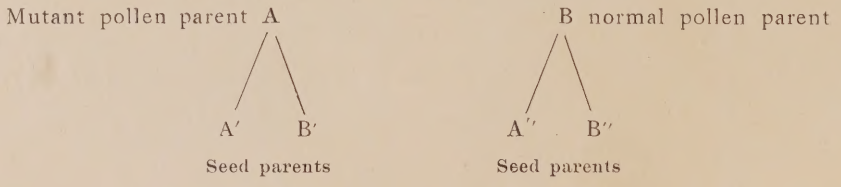
L. R.

---

(1) Some dozen experiments might satisfy our minds with regard to the correctness of these phenomena bordering on Telegony.

These test experiments, should be carried out as follows : A Mutant A and a normal plant B should be divided so as to obtain three specimens of each of the individuals. We should thus have the Mutants A, A′, A″ and the normal plants B, B′, B″. The Mutant A and the normal plan B twould serve as male (pollen parent) and, consequently, would remain free from all influence as *wittnesses*.

The Mutants A′, A″ and the normal plants B′ and B″ would be all four taken as seed parents during several consecutive generations, the Mutant A serving as male (pollen parent) for the seed parent Mutant A′, and normal B′ and the normal plant B exercising the same function for the seed parents Mutant A″ and normal B″.




If after the 3rd or 4th crossing, we notice any trace of modification in the Mutant A″ or in the normal plant B′, we must not conclude, unreservedly, that they are phenoma of Telegony ; for, if at the same time Mutant A′ and the normal plant B″ bore traces of modifications, the question would also arise whether the simple fact of having borne the seeds has not some modifying effect on the heredity of the individual.

For the practical man, it is exclusively important to know if the fact of having borne the seeds can modify a plant. For the biologist, the experiments that I advocate would perhaps decide the question whether Telegony exists in the plant world.

The tests would be materially impossible to carry out with orchids and it would be advisable to repeat them with several kinds of plants.

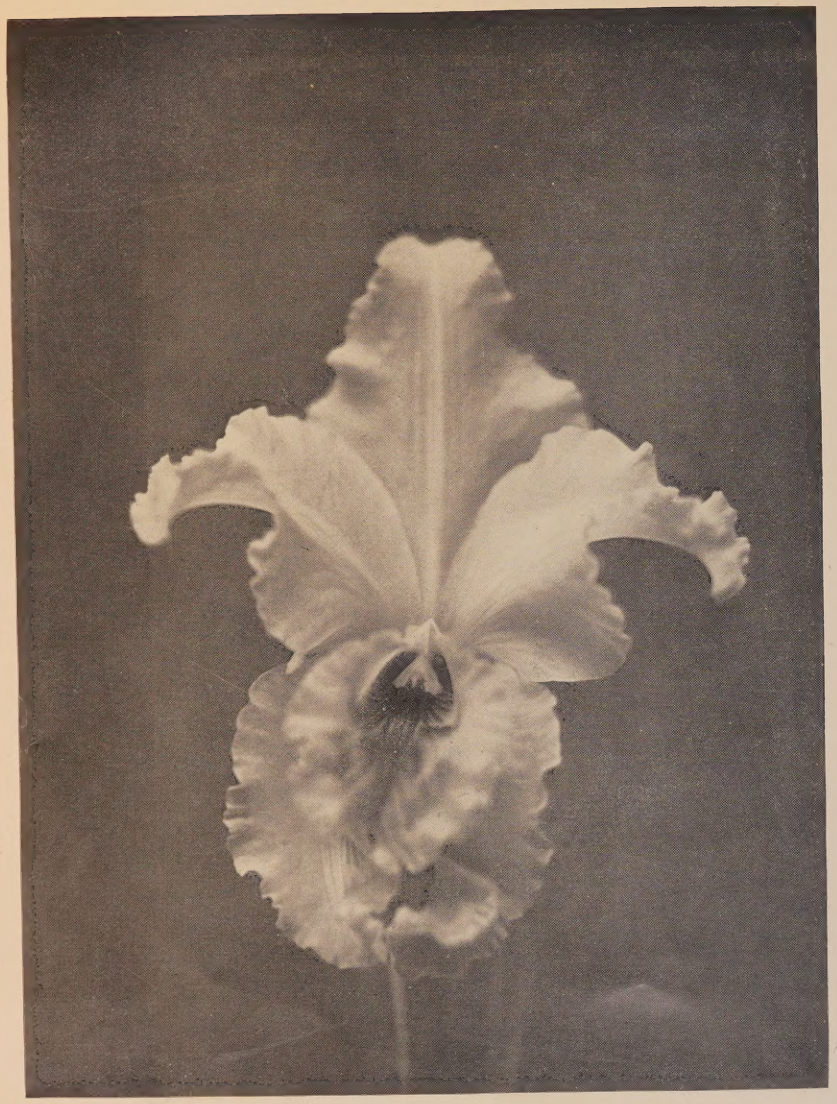


FIG. 43.

*Mutant of imported Cattleya Labiata* (fig. 1).

FIG. 44.

Flower coming from the same plant as fig. 43, showing a modified type of Mutant, which appeared after a crossing in which the plant was taken as seed-parent (the flower which served as male being of *normal* form).

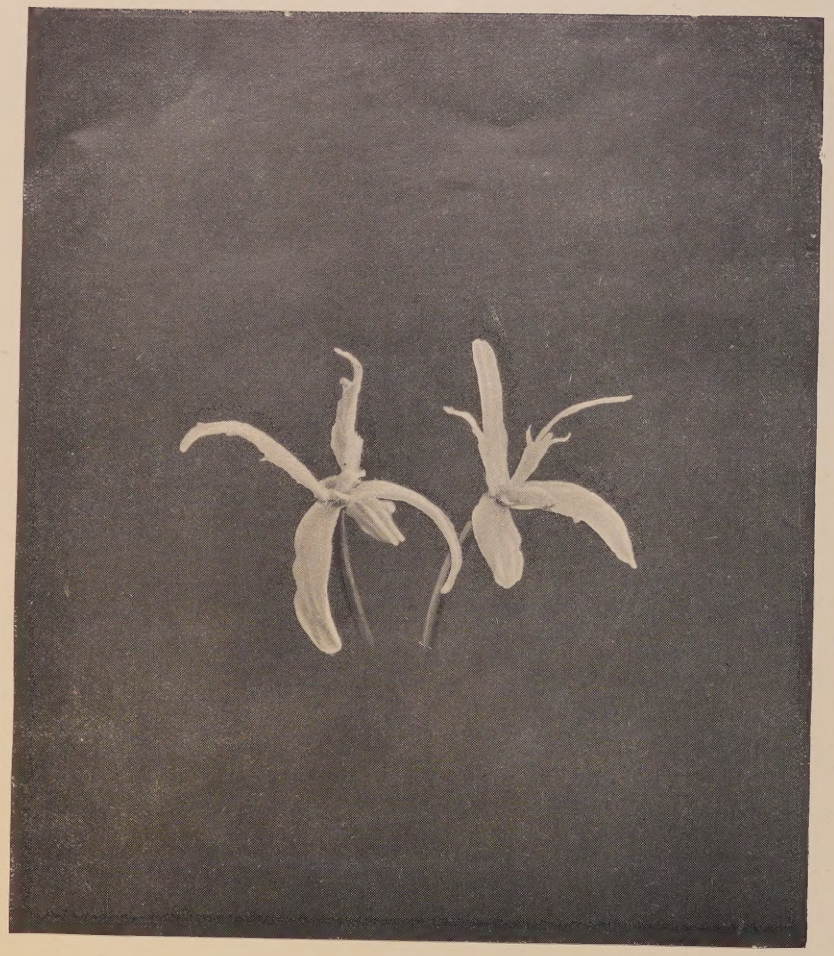


FIG. 45.

Primitive type of Mutant of imported *Cattleya Trianae*.

FIG. 46

Fig. 46-47-48, successive modifications undergone by the Mutant fig. 45, the plant having served several times as seed-parent (the pollen plants having been either a *Cattleya* with normal flowers or a *Mutant* of the Form A (fig. 1).

FIG. 47.

FIG. 48.

# CONCLUSION

By the publication of the preceding pages, scientists and pratical men can convince themselves, as I pointed out in the preface, of the important part that can be played by Mutation among plants and, consequently, of the importance of all research wich tends to provoke it systematically.

After this, I venture to recall here how full of interest are the researches published in my previous booklets, the names of which will be found on one of the first pages of this album.

I specially draw your attention to the importance of the problems considered in the pamphlet entitled : « Concerning the possibility of provoking systematically among plants :

*a*) the appearance of new vital phenomena ;

*b*) Mutation. »

Sooner or later, we must resolve to carry out the experiments and to follow the methods of work explained therein. We shall have to apply to *all species of plants which allow of it :*

1° Fertilization after operation direct in the ovary.

2° *a*) premature germination.

*b*) premature germination after liberation of the germ by operation.

3° Methods called « cultivation in distinct environment »

All this can be summed up as follows : causing the sexual elements and the beings in formation to grow and to develop in the ovary, *under conditions different from the natural ones.*

And this in order to succeed in breaking the initial rhythm of growth of the species which the pollen parent and seed parent strive to confer hereditarily on the descent and thus result in provoking systematically the appearance of new, hereditary, phenomena, namely : *Mutation.*

Numberless researchers, scientists as well as pratical men will rush one day to the conquest of these unexplored fields which are opening out both to Botanical Biology and to Horticultural Science.

The results will not be long in coming, only some dozen years will be necessary before they are fully developed. These new fields of work that I have had the luck or the Mission to discover in the plant world are, moreover *inexhaustible*. They will interest Mankind as long as they take an interest in Botanical Biology or Horticultural Science and the methods of investigation which I advocate will remain, in their main points of course, probably *unchanged*.

I have therefore the right, as I repeat on every occasion, to expect « that my researches be taken up *during my lifetime*, that they be completed and continued ». It was with this wish that I ended the preface and I wish it to end my conclusion also.

Lucien REYCHLER.

January 1928.

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» 4. » Loddigesi.
» 5. Brasso-Cattleya.
» 6. Type of unknown Hybrid.
» 7. Cat. Mrs Pitt × Mutant of Cat. Labiata A (fig. 1) Var. *M^lle Bertha Reychler.*
» 8. » » × » » » Var. *M^me Paula Pauwels-Reychler.*
» 9. » » × » » » Var. *M^me Karel Reychler.*
» 10. L. C. Goldfinch × » » » Var. *M^r Joe Van Assel.*
» 11. Cat. Labiata × » » » Var. *M^me Joseph Van Eyck.*
» 12. » » × » » » Var. *Miss Mitchell.*
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» 14. » » × » » » Var. *M^rs Emmanuel Parsons.*
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The Photo representing the variety *Gratitude to Farley* was taken by M^r Jules Van Brabant, art photo, Brussels.

The Photos 18 × 24 were taken by M^r Hector Van Steenberghen, art photo, at St-Nicolas (Waes).

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